

**Remarks**

The Examiner acknowledged consideration and entry of the amendments (claims 2-4, and 6-19) filed May 12, 2010. The Examiner also noted that, in light of the amendments, all claim objections had been withdrawn.

Applicant thanks the Examiner for the withdrawal of the objections to claims 2-4, 6-14, and 16-18.

The Examiner maintained the previous rejections on the grounds set forth in the Office action dated July 13, 2010 and made the Office action final.

Claims 2-4 and 6-19 stand rejected.

Solely to advance prosecution of the present application, and without acquiescing in the rejections, claims 8-14 and 17-19 have been canceled.

Claims 20-24 depending from claim 15 have been added. Support for these amendments may be found, for example, on page 7, lines 25-32. No new matter has been added.

Therefore, claims 2-4, 6-7, 15, and 20-24 currently are under examination herein.

Applicant respectfully requests favourable consideration of the pending claims.

**Claim Rejections**

**Rejections under 35 U.S.C. § 103**

**A. Carfagnini in view of Credali and Yamanaka**

Claims 2-4 and 6-19 remain rejected as allegedly being unpatentable for obviousness over EP 230,212 ("Carfagnini") in view of WO 2004/026957 ("Credali"), and US 2003/0013820 ("Yamanaka"). The previous grounds of this rejection, set forth on page 3-8 of the Office action dated February 17, 2010, are not reiterated herein for brevity.

With respect to Applicant's amendments to claims 15 and 19, i.e., the plasto-elastomeric composition being recyclable and nontoxic and not producing chlorine or dust or heavy metals, the Examiner contended that, since the composition of Carfagnini in view of Credali and Yamanaka and the method for its production are identical to those claimed in the instant invention, the composition of Carfagnini in view of Credali and Yamanaka will intrinsically have such properties as recyclability and nontoxicity. (citing MPEP 2112.01, i.e., "Products of identical chemical composition can not have mutually exclusive properties")

The Examiner contended that, since the composition of Carfagnini in view of Credali and Yamanaka specifically recites the use of non-halogenated phenolic resin as a cross-linking agent, it would have been obvious to a skilled artisan that chlorine will not be produced because the composition does not contain chlorine derivatives at all. The Examiner asserted that the composition does not comprise compounds containing heavy metals, and therefore, heavy metals will not be produced as well.

The Examiner did not find the following Applicant's arguments persuasive:

- a) Credali and Yamanaka do not disclose EPDM-polyolefin copolymer made by cross-linking EPDM and polyolefins but rather disclose highly filled soft polyolefin composition, as in Credali, or EPDM polymers (cross-linked polymer containing ethylene-propylene rubber, polyethylene), as in Yamanaka with a specific gravity; Carfagnini discloses a laundry list of additives but discloses nothing regarding the types, conditions and feasibility of adding an inorganic filler to EPDM-polyolefin copolymer;
- b) EPDM-polyolefins and polyolefins are different compounds;
- c) the cited references do not teach recyclable and nontoxic plasto-elastomeric composition that does not produce chlorine or dust or contain heavy metals;
- d) there is no teaching, suggestion, or motivation to combine the cited references since mineral fillers are known in the art to negatively influence the physical-mechanical properties of elastomer, causing lower elongation, lower tensile strength, and higher brittleness;

e) the process of cross-linking EPDM terpolymer with polyolefin is known to be unpredictable;

The Examiner therefore maintained the rejection on the following grounds.

First, the Examiner contended that the instant invention discloses a plasto-elastomeric composition comprising EPDM elastomeric phase and polyolefin plastic phase, wherein the EPDM elastomeric phase is cross-linked by a combination of non-halogenated alkylphenol-formaldehyde and salicylic acid cross-linking agents, and not cross-linked with polyolefin, not producing EPDM-polyolefin copolymer.

Second, the Examiner contended that Carfagnini discloses (1) that a process for producing a plastoer-elastomer compositions from polyolefins and EPDM, and plastoer-elastomer compositions obtained with such process and (2) that cross-linking of EPDM elastomeric phase occurs either wholly or in part by thermodynamic vulcanizing methods by non-halogenated phenolic resin used in conjunction with an aromatic carboxylic acid, such as, salicylic acid, cross-linking agents (citing Abstract), which process is identical to that claimed in the instant invention. The Examiner contended that Carfagnini further discloses addition of fillers, such as, carbonates (citing page 4, lines 20-22).

The Examiner conceded that Carfagnini (i) does not specify the carbonate filler as calcium carbonate; (ii) does not specify the amount of an added filler; does not specify adding the filler until the composition shows a total specific gravity of  $2 \text{ kg/dm}^3$  and hardness of Shore A 40 to Shore D 50.

However, the Examiner contended that Credali discloses a composition comprising 8-25% by weight of propylene polymer or copolymer, i.e., a polyolefin plastic phase; 75-92% by weight of elastomeric fraction comprising copolymer of ethylene, propylene and conjugated or non-conjugated diene (citing page 3, lines 22-27), i.e., EPDM elastomeric phase; and further 40-80% by weight of inorganic filler (citing Abstract; page 3, lines 28-29), including calcium carbonate (citing page 11, lines 3-4), to make the composition having Shore A hardness of lower than 85 (citing page 3, lines 29-31; page 11, lines 15-16). The Examiner reasoned that even

though it contains 40-80% by weight of inorganic filler, the composition of Credali shows high elongation at break (higher than 400%), tensile strength of higher than 4 MPa, but also has good flame-retardancy (citing page 3, lines 29-31 ; page 11, lines 11- 29). The Examiner further reasoned that Credali discloses that highly filled compositions are capable of incorporating large amounts of fillers at the same time retaining the physical and mechanical properties of unfilled compositions (p. 11, lines 11-13 ; p. 3, lines 7-9).

The Examiner concluded that it would have been obvious to a skilled artisan that compositions comprising EPDM and polyolefin are capable of being filled highly to improve flame-retardancy but, at the same time, retain good physical and mechanical properties.

Third, with regard to the teachings of Yamanaka, the Examiner contended that Yamanaka further discloses a composition comprising EPDM rubber (citing paragraph [0021]) and polyethylene/polypropylene plastic phase (citing Abstract).

The Examiner reasoned that, since all of Carfagnini, Credali and Yamanaka disclose compositions comprising EPDM elastomer and polyolefin plastic phase, it would have been obvious to a skilled artisan to combine the teachings of Carfagnini, and Yamanaka, i.e., including large amounts of inorganic filler, e.g., including calcium carbonate, into the composition of Carfagnini so that the composition of Carfagnini will be highly filled to improve flame-retardancy but also retaining the physical and mechanical properties of unfilled compositions (citing page 11, lines 11-13 of Credali). The Examiner further reasoned that since the specific amount of used inorganic filler depends on the desired combination of physico-mechanical properties and flame-retardancy, it would have been obvious to one skilled in the art, at the time of the invention was made, to make variations in the amount of the added filler to reach the desired combination of flame-retardancy, hardness and elasticity of the final composition.(citing *In re Boesch*, 617 F.2d 272, 205 USPQ 215 (CCPA 1980) (MPEP 2144.05 II). The Examiner further reasoned that since the composition of Carfagnini in view of Credali and Yamanaka and the method for its production are identical to those claimed in the instant invention, the composition of Carfagnini in view of Credali and Yamanaka will intrinsically have properties such as recyclability and nontoxicity. (citing MPEP 2112.01, "Products of identical chemical composition cannot have mutually exclusive properties").

Furthermore, based on this reasoning, the Examiner concluded that, since the composition of Carfagnini in view of Credali and Yamanaka specifically recites the use of non-halogenated phenolic resin as a cross-linking agent, it would have been obvious to a skilled artisan that chlorine will not be produced since the composition does not contain chlorine derivatives at all. The Examiner also contended that the composition does not comprise compounds containing heavy metals, and therefore, heavy metals will not be produced as well.

Applicant's Response

Solely to advance prosecution of the present application, and without acquiescing in this ground of rejection, product claims 8-14 and 17-19 have been canceled, rendering the rejection moot as to those claims.

For the following reasons, Applicant respectfully urges that the claimed inventions are not obvious over the cited references.

First, each of Carfagnini, Credali and Yamanaka, either taken alone or in combination, do not disclose, teach or suggest, either expressly or inherently, every element of the present claims.

Second, no basis in the art has been identified for combining or modifying the cited references, and the courts warn against employing hindsight reasoning using the invention as a roadmap to find its prior art components. Indeed, there is no plausible reason that would have prompted a person of ordinary skill in the art to combine the cited elements to reach the claimed invention as the Examiner suggests. Carfagnini discloses a process for preparing a plastomer-elastomer from  $\alpha$ -olefin plastomers and EPDM elastomers. With specific regard to the process for making plasto-elastomer, Carfagnini discloses that employing a conventional method of preparing plasto-elastomer, e.g., thermodynamic cross-linking utilizing sulphur or its donors, organic peroxides, quinone derivatives, guanidine, azides, sulphenazides, amines, xanthates, urea, triazoles, imidazoles, sulphenamides, cyanide compounds, isocyanates, and paraquinondixin, has many drawbacks, including uneven cross-linking of rubbery component (EPDM), production of chlorine, and a requirement for high temperatures for reaction. (See page 2, lines 12-16). In order to circumvent these drawbacks, Carfagnini discloses a process for preparing plastomer-elastomer

compounds from EPDM terpolymers and polyolefin resins using a non-halogenated phenolic resin together with an aromatic carboxylic acid as a cross-linking agent. (page 2, lines 38-44). The disclosed process avoids environmental and personal risk stemming from the production of chlorine, and requires considerably lower temperatures and less time for implementation compared to the conventional processes.

Regarding inorganic fillers, Carfagnini only mentions in passing that thermodynamically cross-linked plastomer-elastomer mix may include additives, including fillers (e.g., carbonates, kaolin, talc, calcined clay, heavy spar, asbestos and the like) (emphasis added). However, Cafagnini provides no guidance as to how to incorporate such fillers with the composition and yet retain the desired properties. Thus, based on Carfagnini, undue experimentation would have been necessary for a person of ordinary skill in the art to result in the claimed invention. Indeed, the Examiner conceded in the Office action that Carfagnini, fails to disclose a specific type or an amount of a filler suitable for conferring a specific property (e.g., gravity of 2 kg/dm<sup>3</sup> or hardness of Shore A 40 to Shore D 50) to a plastomer-elastomer mix, or to disclose the effect of adding an inorganic filler into a plasto-elastomeric composition.

In contrast to the Examiner's contention, Credali fails to teach or suggest adding an inorganic filler during or after polymerization of EPDM terpolymers and polyolefins, which is produced in the presence of nonhalogenated alkylphenol-formaldehyde phenolic resin. Instead, Credali discloses a highly filled soft polyolefin composition comprising an inorganic filler, such as flame-retardant inorganic filler or inorganic oxide or salts, which can provide, for example, Shore A hardness lower than 90 (page 3, lines 7-10 and 30-31). However, as Applicant had pointed out in the response filed May 12, 2010, mineral fillers are known in the art to negatively influence the physical-mechanical properties of an elastomer, causing lower elongation, lower tensile strength, and higher brittleness, which are undesirable properties given their utility. (See page 2, lines 8-14 of Credali)

The reference (EP 1,043,733) cited by Credali lends additional support to this argument. It discloses that the polymer material comprising a heterophase copolymer having at least 45% by weight of an elastomeric phase based on ethylene copolymerized with an alpha-olefin, and a thermoplastic phase based on propylene negatively affects the physical and mechanical

properties of the polymer. More specifically, EP 1,043,733 discloses that while the polymer composition incorporates large amounts of flame-retardant filler, the very high levels of filler negatively affect the physical-mechanical properties of the polymer material, for example, resulting in low elongation values.

Third, there is no reasonable degree of predictability of success in the proposed modification or combination.

Applicant urges that, in contrast to the Examiner's contention, the by-products produced by the reaction conditions of each process influence the physical and mechanical properties of the product of that process, and therefore, the reaction condition by-products are critical to the properties of the final product itself. Unexpectedly, as the specification discloses, even if the fillers of mineral origin are added to the Forprene® based composition of the invention, a step that was expected to result in lower elongation, lower tensile strength, and higher brittleness, the composition maintains its optimum, elastic and thermoplastic characteristics, making it suitable for molding, extrusion, reworking and regenerating (specification, page 9), while, at the same time being recyclable, environmentally friendly and nontoxic (specification, page 7).

The process of Credali uses a solid catalyst comprising a halide or halogen alcoholate of Ti and an electron donor compound supported on anhydrous magnesium chloride as a catalyst, whereas Carfagnini's process employs a non-halogenated phenolic resin with a special aromatic carboxylic acid as a catalyst. Credali discloses (1) that “[t]he solid is then isolated and reacted once more with  $TiCl_4$  in the presence or absence of the electron-donor compound; it is then separated and washed with a hydrocarbon until all chlorine ions have disappeared”. (page 7, lines 30-32; emphasis added); and (2) that the reactions result in the formation of a magnesium halide in active form. (page 8, line 8)

In proposing the combination of the Credali filler with the Carfagnini process, the Examiner provides no evidence that a person of skill in the art would have expected that an element of one process (Credali's), namely the filler, could have been used successfully under the reaction conditions of the other (Carfagnini's). Credali's process is carried out under distinctly different reaction conditions using a distinctly different catalyst from the process

described by Carfagnini. Applicants respectfully remind the Office that a rationale offered to support a rejection under 35 U.S.C. 103 must rely on logic and sound scientific principle. See MPEP 2144(02) citing *In re Soli*, 317 F.2d 941, 137 U.S.P.Q. 797 (CCPA 1963), and that when an Examiner relies on a scientific theory, evidentiary support for the existence and meaning of that theory must be provided. *In re Grose*, 592 F.2d 1161, 201 U.S.P.Q. 57 (CCPA 1979). Merely stating that the cumulative disclosures of the references provide evidence of a reasonable expectation of success is not sufficient evidentiary support for such a rationale.

Therefore, based on the teachings of the art (the effects of adding mineral fillers) and the fact that the reaction conditions of the two processes are entirely different, a skilled artisan would have had no reasonable expectation of success of obtaining a plasto-elastomer having the desirable physical and mechanical properties claimed.

Yamanaka does not cure the deficiencies of Credali and Carfagnini. Yamanaka discloses a sound insulating composite material containing a crosslinked polymer containing (a) 100 parts by weight of an ethylene-propylene rubber, 20-100 parts by weight of a polyethylene, and 100-200 parts by weight of a polypropylene, and (b) an inorganic filler in an amount of 200-500 parts by weight relative to 100 parts by weight of the ethylene-propylene rubber.

Therefore, Yamanaka's product does not contain polyolefins (plastic phase). In addition, Yamanaka does not disclose or suggest a process for producing a plasto-elastomeric compound in the presence of non-halogenated alkylphenol-formaldehyde phenolic resin as claimed.

Applicant therefore respectfully requests that the Examiner withdraw the rejections on this ground.

#### **B. Carfagnini in view of Credali, Yamanaka, and Hawley**

Claims 8, 10, and 13 remain rejected under 35 U.S.C. 103(a) as allegedly being unpatentable over EP 230,212 ("Carfagnini") in view of WO 2004/026957 ("Credali"), and US 2003/0013820 ("Yamanaka"), in further view of "Hawley's Condensed Chemical Dictionary", 14<sup>th</sup> Edition, 2002, by John Wiley & Sons Inc ("Hawley"). The previous grounds of the

rejection, set forth on page 9-10 of the Office action dated February 17, 2010, are not reiterated herein for brevity.

The Examiner did not find persuasive Applicant's arguments to the effect (1) that the references cited by the Examiner do not establish that the same kind and the same amount of inorganic filler for either polyolefins or EPDM also could be used in producing EPDM-polyolefin copolymers and (2) that the references are silent as to using inorganic fillers in preparing EPDM-polyolefin copolymers. The Examiner therefore maintained the rejection.

The Examiner contended (1) that the instant application does not disclose production of EPDM-polyolefin copolymers; and (2) that each of Carfagnini, Credali and Yamanaka discloses identical compositions comprising an EPDM elastomer (or rubber) and a polyolefin plastic phase, further containing an inorganic filler, specifically calcium carbonate. The Examiner reasoned that all of the compositions of Carfagnini, Credali and Yamanaka are analogous art and that it would have been obvious to one of ordinary skill in the art, at the time of the invention was made, to use commercially available calcium carbonate with specific gravity 2.71 g/cc, aluminum hydroxide with specific gravity 2.42 g/cc, barium sulfate with specific gravity 4.48 g/cc in the composition and process of Carfagnini in view of Credali and Yamanaka, as it would have been obvious to substitute one equivalent for another used for the same purposes.

#### Applicant's Response

Solely to advance prosecution of the present application, and without acquiescing in this ground of rejection, claims 8, 10, and 13 have been cancelled, rendering the rejection moot as to those claims.

#### **C. Carfagnini in view of Credali and Sullivan**

Claims 2-4 and 6-19 remain rejected under 35 U.S.C. 103(a) as allegedly being unpatentable over EP 230,212 ("Carfagnini") in view of WO 2004/026957 ("Credali"), and US 2004/0209707 ("Sullivan"). The previous grounds of the rejection, set forth on pages 10-15 of the Office action dated February 17, 2010, are not reiterated herein for brevity.

With respect to Applicant's amendments to claims 15 and 19, i.e., the plasto-elastomeric composition being recyclable and nontoxic and not producing chlorine or dust or heavy metals, the Examiner contended that, since the composition of Carfagnini in view of Credali and Sullivan and the method for its production are identical to those claimed in the instant invention, the composition of Carfagnini in view of Credali and Sullivan will intrinsically have such properties as recyclability and nontoxicity. (Citing MPEP 2112.01, i.e., "Products of identical chemical composition can not have mutually exclusive properties" ).

The Examiner further contended that, since the composition of Carfagnini in view of Credali and Sullivan specifically recites the use of non-halogenated phenolic resin as a cross-linking agent, it would have been obvious to a skilled artisan that chlorine will not be produced, because the composition does not contain chlorine derivatives at all. In addition, the Examiner contended that the composition does not comprise compounds containing heavy metals, and therefore, heavy metals will not be produced as well.

The Examiner did not find the following Applicant's arguments persuasive;

(1) there is no reasons to combine the cited references since mineral fillers are known in the art to negatively influence the physical-mechanical properties of elastomer, causing lower elongation, lower tensile strength, and higher brittleness;

(2) Credali discloses addition of mineral fillers to polyolefins, but the present invention comprises an additional component, namely EPDM-terpolymer-polyolefin copolymer; and

(3) the cited references do not teach the recyclable and nontoxic composition that does not produce chlorine or dust or heavy metals.

The Examiner therefore maintained the rejection on the following grounds.

The Examiner contended that, in addition to the teachings of Credali discussed in Section A, Credali further teaches incorporating high amounts of inorganic filler to compositions comprising crystalline polyolefin fraction (Page 3, lines 14-21) and EPDM elastomeric fraction (Page 3, lines 22-27) without losing their physical-mechanical properties (Page 3, lines 7-9).

Therefore, the Examiner reasoned that, since the composition of Carfagnini in view of Credali and Sullivan, and the method for its production are identical to those claimed in the instant invention, the composition of Carfagnini in view of Credali and Sullivan will intrinsically have such properties as recyclability and nontoxicity. (citing MPEP 2112.01 "Products of identical chemical composition can not have mutually exclusive properties").

The Examiner further reasoned that, since the composition of Carfagnini in view of Credali and Sullivan specifically recites the use of non-halogenated phenolic resin as a cross-linking agent, it would have been obvious to a skilled artisan that chlorine will not be produced since the composition does not contain chlorine derivatives at all. The Examiner also contended that the composition does not comprise compounds containing heavy metals, therefore, heavy metals will not be produced as well.

Applicant's Response

Solely to advance prosecution of the present application, and without acquiescing in this ground of rejection, product claims 8-14 and 17-19 have been canceled, rendering the rejection moot as to those claims.

For the following reasons, Applicant respectfully urges that the claimed inventions are not obvious over the cited references.

First, each of Carfagnini, Credali and Sullivan, either taken alone or in combination, do not disclose, teach or suggest, either expressly or inherently, every element of the present claims.

Second, no basis in the art has been identified for combining or modifying the cited references, and the courts warn against employing hindsight reasoning using the invention as a roadmap to find its prior art components. Indeed, there is no plausible reason that would have prompted a person of ordinary skill in the art to combine the cited elements to reach the claimed invention as the Examiner suggests.

As discussed in Section A, Carfagnini discloses a process for preparing a plastomer-elastomer from  $\alpha$ -olefin plastomers and EPDM elastomers. With specific regard to the process

for making plasto-elastomer, Carfagnini discloses that employing a conventional method of preparing plasto-elastomer, e.g., thermodynamic cross-linking utilizing sulphur or its donors, organic peroxides, quinine derivatives, guanidine, azides, sulphenazides, amines, xanthates, urea, triazoles, imidazoles, sulphenamides, cyanide compounds, isocyanates, and paraquinonodixin, has many drawbacks, including uneven cross-linking of rubbery component (EPDM), production of chlorine, and a requirement for high temperatures for reaction. (See page 2, lines 12-16). In order to circumvent these drawbacks, Carfagnini discloses a process for preparing plastomer-elastomer compounds from EPDM terpolymers and polyolefin resins using a non-halogenated phenolic resin together with an aromatic carboxylic acid as a cross-linking agent. (page 2, lines 38-44). The disclosed process avoids environmental and personal risk stemming from the production of chlorine, and requires considerably lower temperatures and less time for implementation compared to the conventional processes.

Regarding inorganic fillers, Carfagnini only mentions in passing that thermodynamically cross-linked plastomer-elastomer mix may include additives, including fillers (e.g., carbonates, kaolin, talc, calcined clay, heavy spar, asbestos and the like) (emphasis added). However, Cafagnini provides no guidance as to how to incorporate such fillers with the composition and yet retain the desired properties. Thus, based on Carfagnini, undue experimentation would have been necessary for a person of ordinary skill in the art to result in the claimed invention. Indeed, the Examiner conceded in the Office action that Carfagnini, fails to disclose a specific type or an amount of a filler suitable for conferring a specific property (e.g., gravity of 2 kg/dm<sup>3</sup> or hardness of Shore A 40 to Shore D 50) to a plastomer-elastomer mix, or to disclose the effect of adding an inorganic filler into a plasto-elastomeric composition. In contrast to the Examiner's contention, however, Credali fails to teach or suggest adding an inorganic filler during or after polymerization of EPDM terpolymers and polyolefins, which is produced in the presence of nonhalogenated alkylphenol-formaldehyde phenolic resin. Instead, Credali discloses a highly filled soft polyolefin composition comprising an inorganic filler, such as flame-retardant inorganic filler or inorganic oxide or salts, which can provide, for example, Shore A hardness lower than 90 (page 3, lines 7-10 and 30-31). However, as Applicant had pointed out in the response filed May 12, 2010, mineral fillers are known in the art to negatively influence the physical-mechanical properties of an elastomer, causing lower elongation, lower tensile strength,

and higher brittleness, which are undesirable properties given their utility. (See page 2, lines 8-14 of Credali)

The reference (EP 1,043,733) cited by Credali lends additional support to this argument. It discloses that the polymer material comprising a heterophase copolymer having at least 45% by weight of an elastomeric phase based on ethylene copolymerized with an alpha-olefin, and a thermoplastic phase based on propylene negatively affects the physical and mechanical properties of the polymer. More specifically, EP 1,043,733 discloses that while the polymer composition incorporates large amounts of flam-retardant filler, the very high levels of filler negatively affect the physical-mechanical properties of the polymer material, for example, resulting in low elongation values.

Third, there is no reasonable degree of predictability of success in the proposed modification or combination.

Applicant urges that, in contrast to the Examiner's contention, the by-products produced by the reaction conditions of each process influence the physical and mechanical properties of the product of that process. Therefore, the reaction condition by-products are critical to the properties of the final product itself. Unexpectedly, as the specification discloses, even if the fillers of mineral origin are added to the Forprene® based composition of the invention, a step that was expected to result in lower elongation, lower tensile strength, and higher brittleness, the composition maintains its optimum, elastic and thermoplastic characteristics, making it suitable for molding, extrusion, reworking and regenerating (specification, page 9), while, at the same time being recyclable, environmentally friendly and nontoxic (specification, page 7).

The process of Credali uses a solid catalyst comprising a halide or halogen alcoholate of Ti and an electron donor compound supported on anhydrous magnesium chloride as a catalyst, whereas Carfagnini's process employs a non-halogenated phenolic resin with a special aromatic carboxylic acid as a catalyst. Credali discloses (1) that "[t]he solid is then isolated and reacted once more with  $TiCl_4$  in the presence or absence of the electron-donor compound; it is then separated and washed with a hydrocarbon until all chlorine ions have disappeared". (page 7,

lines 30-32; emphasis added); and (2) that the reactions result in the formation of a magnesium halide in active form. (page 8, line 8)

In proposing the combination of the Credali filler with the Carfagnini process, the Examiner provides no evidence that a person of skill in the art would have expected that an element of one process (Credali's), namely the filler, could have been used successfully under the reaction conditions of the other (Carfagnini's). Credali's process is carried out under distinctly different reaction conditions using a distinctly different catalyst from the process described by Carfagnini. Applicants respectfully remind the Office that a rationale offered to support a rejection under 35 U.S.C. 103 must rely on logic and sound scientific principle. See MPEP 2144(02) citing *In re Soli*, 317 F.2d 941, 137 U.S.P.Q. 797 (CCPA 1963), and that when an Examiner relies on a scientific theory, evidentiary support for the existence and meaning of that theory must be provided. *In re Grose*, 592 F.2d 1161, 201 U.S.P.Q. 57 (CCPA 1979). Merely stating that the cumulative disclosures of the references provide evidence of a reasonable expectation of success is not sufficient evidentiary support for such a rationale.

Therefore, based on the teachings of the art (the effects of adding mineral fillers) and the fact that the reaction conditions of the two processes are entirely different, a skilled artisan would have had no reasonable expectation of success of obtaining a plasto-elastomer having the desirable physical and mechanical properties claimed.

Sullivan does not cure the deficiencies of Credali and Carfagnini.

Sullivan discloses a multi-layered golf ball, wherein each of the layers has different specific gravity and different Shore hardness. Specifically, the outer core layer comprising EPDM rubber in Sullivan is filled with density increasing material, such as calcium carbonate or barium sulfate, having a specific gravity of greater than 1.75g/cc or greater than 2g/cc. The filler comprises calcium carbon having specific gravity of 2.71 g/cc or barium sulfate having specific gravity of 4.6 g/cc; the outer core layer has Shore D hardness of at least 30.

Therefore, the composition disclosed by Sullivan is not a plasto-elastomer comprising EPDM polymers and polyolefins; Sullivan's composition only contains an EPDM rubber. In addition, Sullivan does not disclose or suggest a process for producing a plasto-elastomeric

compound in the presence of non-halogenated alkylphenol-formaldehyde phenolic resin as claimed. Therefore, Applicant urges that the specific gravity of EPDM rubber disclosed by Sullivan cannot be compared with that of the claimed invention, which contains both EPDM and polyolefins.

Therefore, Applicant respectfully requests that the Examiner withdraw the rejections on this ground.

#### **D. Carfagnini in view of Credali, Sullivan, and Hawley**

Claims 10 and 13 remain rejected under 35 U.S.C. 103(a) as allegedly being unpatentable over EP 230,212 ("Carfagnini") in view of WO 2004/026957 ("Credali"), US 2004/0209707 ("Sullivan"), and "Hawley's Condensed Chemical Dictionary", 14th Edition, 2002, by John Wiley & Sons Inc ("Hawley"). The previous grounds of the rejection, set forth on pages 15-17 of the Office action dated February 17, 2010, are not reiterated herein for brevity.

The Examiner did not find persuasive Applicant's arguments to the effect (1) that the references cited by the Examiner do not establish that the same kind and the same amount of inorganic filler for either polyolefins or EPDM also could be used in producing EPDM-polyolefin copolymers and (2) that the references are silent as to using inorganic fillers in preparing EPDM-polyolefin copolymers.

The Examiner therefore maintained the rejection.

The Examiner contended (1) that the instant application does not disclose production of EPDM-polyolefin copolymers and (2) that each of Carfagnini, Credali and Sullivan discloses identical compositions comprising an EPDM elastomer (or rubber) and polyolefin plastic phase, further containing inorganic filler, specifically calcium carbonate. The Examiner reasoned that all of the compositions of Carfagnini, Credali and Sullivan are analogous art and that it would have been obvious to one of ordinary skill in the art at the time of the invention was made to use commercially available calcium carbonate with specific gravity 2.71 g/cc, aluminum hydroxide with specific gravity 2.42 g/cc, barium sulfate with specific gravity 4.48 g/cc in the composition

and the process of Carfagnini in view of Credali and Sullivan as it would have been obvious to substitute one equivalent for another used for the same purposes.

Applicant's Response

Solely to advance prosecution of the present application, and without acquiescing in this ground of rejection, claims 10 and 13 have been canceled, rendering the rejection moot as to those claims.

\* \* \*

Since there is no prior art that teaches or suggests the claimed invention, Applicant respectfully requests that the Examiner withdraw all objections to and rejections of the present invention.

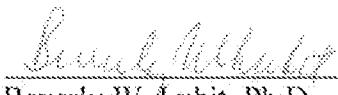
Applicant urges that this application is now in condition for allowance and earnestly solicits early and favorable action by the Examiner. If the Examiner believes that issues may be resolved by a telephone interview, the Examiner is respectfully urged to telephone the undersigned at 973-360-7934. The undersigned also may be contacted via e-mail at [lubitb@gtlaw.com](mailto:lubitb@gtlaw.com).

## AUTHORIZATION

The Commissioner hereby is authorized to charge any fees, including the appropriate fee for a submission of a terminal disclaimer by a small entity, which may be required, or credit any overpayment to Deposit Account 501561.

Respectfully submitted,  
For Greenberg Traurig  
By

Date: 11/23/10

  
\_\_\_\_\_  
Beverly W. Lubit, Ph.D.  
Attorney for Applicant  
Registration No. 47,759

Greenberg Traurig, LLP  
200 Park Avenue  
P.O. Box 677  
Florham Park, NJ 07932  
www.gtlaw.com